

**Adjustments to the Claims:**

Please cancel claims 19, 22, and 26.

Please amend claims 23-25 and 27 as follows.

The listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

We claim:

17. (Original) A composition of matter comprising a Y-Ba-Cu-O complex of nominal formula:  
 $(Y_{1-x}Ba_x)_aCu_bO_y$ , wherein “x” is about 0.01 to 0.5, “a” is about 1 to 2, “b” is 1, and “y” is about 2 to about 4, containing a superconductive crystalline phase consisting essentially of Y, Ba, Cu and O which has zero electrical resistance at 77°K or above, said superconductive crystalline phase having a crystal structure uncharacteristic of that of a  $K_2NiF_4$  crystal structure, and said superconductive crystalline phase being present in said composition of matter in a quantity sufficient to provide the composition with a diamagnetic signal at 4.2°K corresponding to at least 24% of the superconducting signal of a lead sample with similar dimensions.
18. (Original) A composition of matter comprising a Y-Ba-Cu-O complex of nominal formula:  
 $(Y_{1-x}Ba_x)_aCu_bO_y$ , wherein “x” is 0.4, “a” is 2, “b” is 1, and “y” is about 2 to about 4, containing a superconductive crystalline phase consisting essentially of Y, Ba, Cu and O which has zero electrical resistance at 77°K or above, said superconductive crystalline phase having a crystal structure uncharacteristic of that of a  $K_2NiF_4$  crystal structure, and said superconductive crystalline phase being present in said composition of matter in a quantity sufficient to provide the composition with a diamagnetic signal at 4.2°K corresponding to about 24% of the superconducting signal of a lead sample with similar dimensions
19. (Cancelled)

20. (Original) A method for conducting an electrical current without electrical resistive losses, comprising the steps of:
- utilizing as a conductor a composition of matter comprising a Y-Ba-Cu-O complex of nominal formula  $(Y_{1-x}Ba_x)_aCu_bO_y$ , wherein "x" is about 0.01 to 0.5, "a" is about 1 to 2, "b" is 1, and "y" is about 2 to about 4, containing a superconductive crystalline phase consisting essentially of Y, Ba, Cu and O which has zero electrical resistance at 77°K or above, said superconductive crystalline phase having a crystal structure uncharacteristic of that of a  $K_2NiF_4$  crystal structure, and said superconductive crystalline phase being present in said composition of matter in a quantity sufficient to provide the composition with a diamagnetic signal at 4.2°K corresponding to at least 24% of the superconducting signal of a lead sample with similar dimensions;
- cooling said composition of matter to a temperature at or below that at which said crystalline phase becomes superconductive; and
- initiating a flow of electrical current within said composition of matter while maintaining said composition of matter at or below the temperature at which said crystalline phase becomes superconductive.
21. (Original) A method for conducting an electrical current without electrical resistive losses, comprising the steps of:
- utilizing as a conductor a composition of matter comprising a Y-Ba-Cu-O complex of nominal formula  $(Y_{1-x}Ba_x)_aCu_bO_y$ , wherein "x" is 0.4, "a" is 2, "b" is 1, and "y" is about 2 to about 4, containing a superconductive crystalline phase consisting essentially of Y, Ba, Cu and O which has zero electrical resistance at 77°K or above, said superconductive crystalline phase having a crystal structure uncharacteristic of that of a  $K_2NiF_4$  crystal structure, and said superconductive crystalline phase being present in said composition of matter in a quantity sufficient to provide the composition with a diamagnetic signal at 4.2°K corresponding to about 24% of the superconducting signal of a lead sample with similar dimensions;

cooling said composition of matter to a temperature at or below that at which said crystalline phase becomes superconductive; and  
 initiating a flow of electrical current within said composition of matter while maintaining said composition of matter at or below the temperature at which said crystalline phase becomes superconductive.

22. (Cancelled)
23. (Currently Amended) The superconducting composition of claim ~~24~~ 22—wherein the composition exhibits zero electrical resistance at a temperature of 77°K or above.
24. (Currently Amended) ~~A The~~ superconducting composition exhibiting zero electrical resistance at a temperature of 40°K or above ~~of claim 23~~ having the nominal formula



wherein x is 0.4, a is 2, b is 1, and y is 2 to 4.

25. (Currently Amended) The superconducting composition of claim ~~24~~ 22—wherein said composition has a crystal structure uncharacteristic of that of a K<sub>2</sub>NiF<sub>4</sub> crystal structure.
26. (Cancelled)
27. (Currently Amended) A superconducting composition exhibiting zero electrical resistance at a temperature of 77°K or above having the nominal formula:  
 ~~$Y_aBa_bCu_cO_x$~~   $Y_aBa_bCu_cO$   
 wherein “a” is about 1.2, “b” is about 0.8, “c” is about 1.0, and “x” is about 2 to 4.